

## ACKNOWLEDGEMENTS

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## Further comments on hybridisation between the European Wigeon and Northern Shoveler

by JAMES M. HARRISON

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In 1959 the writer was able, through the generosity of Captain C. R. Peacock, to comment upon the characters presented by crossing a male European Wigeon (*Anas penelope* Linnaeus) and a female Northern Shoveler (*Anas clypeata* Linnaeus), an instance of a cross in which the exact parentage and age of the individual was known (Harrison, 1959).<sup>1</sup> Again thanks to Captain Peacock I have been able to investigate the sibling of the above mentioned specimen, which presents a marked variation in facial pattern, though in other respects very similar, while additionally I have been favoured with a third specimen presenting characteristics so closely approximating to those of the instance reported in 1959 (*loc. cit.*) and its sibling as to suggest that the same parent species were involved. The resemblances in fact between the first example and the last one mentioned, for which I am indebted to The Wildfowl Trust, are such that there would appear to be no reasonable doubt that the individual is also a European Wigeon x Northern Shoveler hybrid.

Dealing with the sibling individual first; this bird was hatched in the spring of 1957 and was presented to me in October 1962. It was kept alive



Fig. I European Wigeon x Northern Shoveler hybrids, ventral aspects.  
 On left, ♂ adult, May 18th, 1963, Sibling.  
 Centre, ♂ adult, March 26th, 1959, Sibling.  
 On right, ♂ February 19th, 1963.

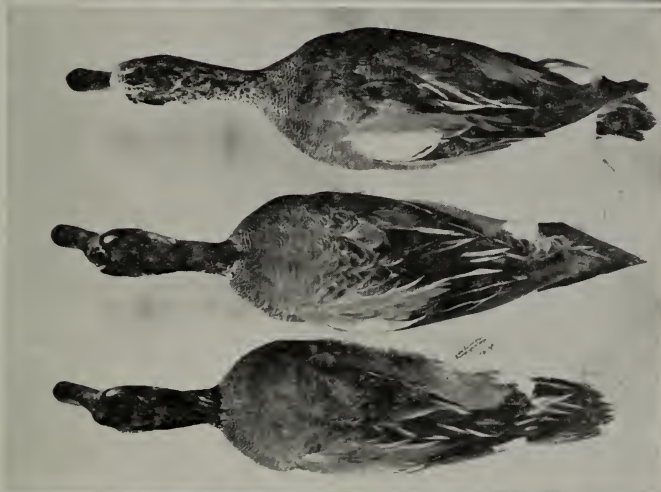


Fig. II Same specimens, dorsal aspects.



Same specimens, lateral aspects.

Fig. III

until 18th May, 1963, when it was decided to undertake certain investigations concurrently with similar investigations of an adult drake of each parent species. For the two control birds I am indebted to Mr. W. Mouland for the Wigeon, and the Wildfowl Trust for the Shoveler.

Since the exact parentage was known, it was considered of importance to establish, if possible, the genetic state for the two parent species, as well as for that of the hybrid and to this end, after appropriate pre-medication to arrest mitosis, the birds were chloroformed and material from the gonads and bone marrow was immediately taken and submitted to Dr. B. M. Slizynski of the Institute of Animal Genetics, Edinburgh, <sup>6</sup> for investigation, and who very kindly undertook this side of the research.

The birds were then prepared as cabinet specimens, the pectoral girdles, a femur from each and the respiratory bullae of all three being also saved as comparative material. It should also be noted that this bird proved on dissection to be an anatomical male, there was no pathology found although the right testis was slightly crenated.

In my 1959 communication (*loc. cit.*) a very detailed description of the plumage characters of the first of these hybrids was given and certain details are repeated herein for a ready comparison with the other specimens.

As can be seen from the accompanying plates, these three birds show a very marked similarity, and this communication is intended to stress the individual variation that such a cross can show. It is fortunate that the widest variation is between the two siblings of known parentage, and that the other individual of which the parents are not known, in its characters closely resembles the first of the three recorded hybrids. It should be noted at this stage that the second of the two siblings developed the "bimaculated" facial pattern when it first assumed its full plumage, and this it has maintained subsequently up to the time of investigation, as distinct from the "bridled" facial pattern of the other two individuals.

This paper is to be read as a continuation of, and very relevant to that of 1959.

On their broad morphological characters it can be seen in the plates that the upper and lower aspects the three birds all show the same general pattern, and that they are to some extent intermediate. This state is perhaps best demonstrated by the wing-coverts which grade from greyish to grey and white to largely white. In the plates the two siblings of known parentage are the left and centre birds, the bird of unknown parentage is on the right. While the body plumage, wings and tail, indicate an intermediate state between the two parent species, it is in the heads and necks that the most striking characters are seen, for these, as has been stressed in previous communications, are in no way intermediate between the two parent species, but show characters relating to another species. They may almost be interpreted as clinal, from the bimaculated to the bridled state, both of which it is contended are fundamentally basic and found in various other species in the Anatidae, and as substantiating my previous comment (1959) (*loc. cit.*) that "there would seem little doubt that bridling and bimaculation are to be regarded as an expression of a unit character, always having the same location both when occurring spontaneously as well as when resulting from interspecific hybridisation".

The individual variation as between these three hybrids is shown in the following table:

	♂ ad. May 18th 1963 (Left)	♂ ad. March 26th 1959 (Centre)	♂ February 19th 1963 (killed by other ducks) (Right)
<b>UPPER PARTS:</b>			
Back adjacent to neck.	Dark vinaceous, at centre greyer. Fine pale sepia vermiculations.	Distinctly greyer with vermiculations slightly heavier and more distinct.	Ground colour ash with well marked pale sepia vermiculations.
Mantle.	Nearest Van Dyke Brown (Ridgeway 1886, Pl. iii., 5) finely and obscurely vermiculated Isabella colour ( <i>loc. cit.</i> Pl. iii, 23).	Nearest Mouse Grey ( <i>loc. cit.</i> Pl. ii., 11) finely and obscurely vermiculated ashy-grey. In mid-line almost uniform.	Near to bird of 26.3.59. but some admixture of pale brownish wash.
Lower back.	Appears somewhat brownish and centres of feathers darkish sepia.	Distinctly greyish, centres of feathers less dark sepia, edges ashy.	Almost uniform at lower edge; greyish-brown with fine vermiculations above (much damaged).
Back and rump.	Brownish-sepia.	Sepia feathers edged whitish.	? (much damaged).
Upper tail-coverts.	Blackish, edged white and also some pale brownish ash.	Upper mostly grey finely vermiculated black: lower black edged white, also some pale brownish-ash.	Uppermost grey very finely vermiculated black, lower black edged very pale brownish-ash.
Rectrices.	Central and innermost sepia, outer pairs very pale sepia edged very pale ashy-brown.	Central pair sepia narrowly edged white; rest palest sepia broadly edged white and finely vermiculated pale grey next to quills on both vanes.	Central pair sepia rest paler and narrowly edged ashy-brown. Much damaged.
<b>UNDER PARTS:</b>			
Breast.	A well defined breast shield, mainly bay to chestnut but with some very dark vinaceous reflections particularly lower third and on sides, no obvious spots or bars except laterally where fine barring.	A well defined breast shield of pale bay; shows some vinaceous reflections at lower third and lower edge of breast shield almost typical vinaceous of Wigeon. Colours richer laterally. Breast shows vestigial spotting.	A well defined breast shield of palest bay reflecting vinaceous, particularly at free edge below. Whole area freely and irregularly spotted and barred. Laterally colours stronger.

♂ ad. May 18th  
1963♂ ad. March 26th  
1959♂ February 19th  
1963  
(killed by other ducks)  
(Right)

(Left)

(Centre)

## Belly.

Whitish suffused pale pinkish-bay, lower belly ditto with fine but with slight and very faint pale greyish vermiculations. This is particularly evident adjacent to the edge of the breast shield from where it extends broadly on both sides merging into the chestnut-bay of the flanks, which doubtless represents a very dilute derivation of the strong chestnut-bay underparts of *A. clypeata*.

White, lower belly shows faint greyish vermiculations.

White with tendency to spotting with palest-bay suffusion adjacent to breast-shield and at edges of flanks. Lower belly spotted pale sepia.

## Vent.

White finely vermiculated pale greyish.

White faintly vermiculated greyish, stronger next to tail-coverts.

Whitish blotched pale sepia.

## Under tail-coverts.

Black.

Black, tips of longest vermiculated greyish.

Black.

## Rectrices.

Pale sepia.

Central pale sepia, rest whitish-sepia.

Pale sepia.

## FLANKS:

Rich chestnut-bay, the posterior 2/3 vermiculated pale sepia and becoming greyer posteriorly. At root of tail whitish, some feathers finely edged black or vermiculated black.

Pale bay in places whitish, posteriorly greyish, vermiculated pale sepia. At root of tail white, some feathers finely edged black.

Anteriorly and adjacent to belly bay. Posterior 3/4 grey slightly tinged pale bay finely vermiculated palest sepia. At root of tail white finely vermiculated palest sepia, posteriorly white, some feathers finely spotted dark sepia.

## WING: (upper surface)

## Coverts.

Slate-grey (*loc. cit.* Pl. ii., 5) though slightly more blue, paler on greater coverts, very pale at speculum where edged white. Greater coverts dark drab broadly edged dark sepia, narrowly edged whitish bay.

Same as previous specimen but more white. Towards speculum drab to grey, barred blackish subterminally and terminally blackish and pale bay narrowly edged whitish.

Lesser coverts slate-grey, median and greater coverts more white, towards speculum very pale drab, subterminally blackish, terminally pale bay edged white.

	♂ ad. May 18th 1963	♂ ad. March 26th 1959	♂ February 19th 1963 (killed by other ducks) (Right)
	(Left)	(Centre)	
Speculum.	Dull greenish reflecting slightly bronze, at lower edge blackish, edged narrowly white anteriorly.	Brighter metallic green, slight bronze reflections at edges of feathers, at lower edge blackish, edged finely white anteriorly.	Metallic green, at lower edge blackish, narrowly edged whitish anteriorly.
Scapulars.	Sepia edged strongish bay, longest dull bluish-grey, on medial vanes bay to whitish.	Some bluish-grey lighter than in sibling. Longest black on outer vanes narrowly edged white, inner vanes sepia. Innermost paler and broadly edged palest sepia and whitish.	Some dull bluish-grey, rest blackish or sepia: very narrowly edged white.
Primaries.	Sepia, outer vanes darker.	Sepia, outer vanes darker.	Sepia, outer vanes darker.
Secondaries.	Sepia, outer vanes darker.	Sepia, outer vanes darker.	Sepia, outer vanes darker.
Fore edge.	Mottled greyish-drab and whitish.	Mottled greyish-drab and whitish.	Mottled drab and whitish.
WING: (under surface)			
Coverts.	Pale drab and white, slight pale bay tinge.	Drab and white, slightly tinged bay.	Drab and white minimal pale bay tinge at fore-edge of wing.
Axillaries.	White.	White.	White.
Fore edge.	As above (see upper surface).	As above (see upper surface.)	As above (see upper surface).
Primaries.	Whitish sepia to pale grey.	Whitish sepia to pale grey.	Whitish sepia to pale grey.
Secondaries.	Whitish sepia to pale grey.	Whitish sepia to pale grey.	Whitish sepia to pale grey.
HEAD AND NECK:			
Forehead.	Blackish, at mid-point flecked white.	Blackish, at mid-point whitish tending towards a band.	Narrowly blackish at base of bill, rest of forehead white flecked lightly blackish.
Crown.	Black to nape, above eyes and running back to nape reflecting dull metallic green.	Blackish dully reflecting purplish edges of feathers edged very narrowly with bay.	Purplish black feather edges faintly margined pale bay.
Nape.	Brighter metallic green.	Purplish black tinged bay, extending well down on to back of neck.	Pale bay transversely and longitudinally marked purplish-black.
Back of neck.	Metallic green, darkish markings where joining body.	Metallic green, darkish markings where joining body.	Pale bay flecked and striated greenish-black.

	♂ ad. May 18th 1963	♂ ad. March 26th 1959	♂ February 19th 1963 (killed by other ducks)
	(Left)	(Centre)	(Right)
Lores.	A broad white crescent at borders	A broad white crescent. at borders	A broad whitish crescent runs upwards to
Cheeks.	minutely flecked black. Rest of cheek blackish. A broad "bridle" giving rise to a "bimaculated" effect; in front of eye blackish: below, behind and above eye darkish bay flecked blackish. "Bimaculated" spot bay, flecked blackish.	minutely flecked black, upper end of crescent extends above mid-point of eyes. A narrow "bridle". Rest of cheek and extending down to front of neck white.	join white of forehead and white superciliary stripes. A broad "bridle" and behind this a pale bayish-white "bimaculated", flecked blackish: this merges into pale bay sides of neck and white of front of neck.
Sides of neck.	Dull dark metallic green.	White behind "bridle" to root of neck: obliquely above and extending as a wedge-shaped marking at edge of white, dusky, in centre metallic green and adjacent to body, bay coloured flecked dusky.	Strong metallic green, behind eye and over ear-coverts medium dark bay. Near root of neck some bay colour at bases of feathers.
Chin.	Dark sepia chin spot.	Chin and chin patch dusky bay.	Pale bay flecked dusky
Throat.	Sepia tinged bay, striated whitish becoming dusker lower down.	Throat and front of neck white tinged bay and freely flecked dusky-bay.	White heavily flecked dusky.
Root of neck.	A large triangular white spot, striated blackish at edges and some irregular blackish transverse striations.	White slightly flecked dusky.	Rest of neck ditto. at root of neck a large white triangular marking, with slight blackish bars, lower edge dusky.
SOFT PARTS:			
Iris.	Brown.	Brown.	Brown.
Bill.	Slate grey, nail blackish.	Slate grey, nail blackish.	Slate grey, nail blackish.
Tarsi, toes and webs.	Dull brownish ochre, joints, webs and nails dusky.	Dull brownish ochre, joints, webs and nails dusky.	Dull brownish ochre, joints, webs and nails dusky.
Anatomical sex.	♂	♂	♂

## MEASUREMENTS IN MM.:

Wing.	262	255	262
Bill.			
Length from feather margin.	49	45.5	48
Width at nostrils.	18	17.5	15
Width at widest point.	19	19	20
Tarsus.	39.5	39	38.5
Middle toe with claw.	51	49.5	53.5
Tail	95	96	damaged.

The structure of the respiratory tracts of ducks and the taxonomic significance of such is dealt with in a paper by Johnsgard (1959/60)<sup>2</sup> as reflecting aspects of great importance in determining relationships. With this in view I submitted the bullae of the two sibling individuals to Dr. J. V. Beer for his opinion: on these and the specimen of 19th February, 1963, his comments (*in litt.* 10. vii. 63) are as follows: "The structure of the bullae in the three hybrids are remarkably similar, showing no more difference than one might expect from individual variation". Dr. Beer goes on to add that this supports the view that the Wildfowl Trust specimen is of the same parentage, *viz.* *A. penelope* x *A. clypeata* as the two sibling birds in which the parentage is definitely known. Presented with the tracheae only, he could not have worked out the parentage. In form the specimens show more characteristics of *A. penelope* than *A. clypeata*.

In addition to this data on the bullae, the skeletal measurements of the sibling of 18th May and of the two parent species are to be noted.

MEASUREMENTS IN MM. (taken from articulated pectoral girdles).

	<i>Hybrid</i> 18.5.63.	<i>A. penelope.</i>	<i>A. clypeata.</i>
Sternum.			
Crista.	96	95	89.5
Upper width.	41	41	36.5
Width at lower end.	47	55.5	42.5
Coracoid.	48	49	43
Scapula.	68	71	57.5
Furcula.	41	45	39
Femur	44.5	45	39.5

*Discussion:*

Elucidation of hybrid individuals is invariably of great interest and, without any doubt whatsoever, when the parentage is definitely known the interpretation is greatly aided. Information as to the resulting morphology of interspecific hybrids crossed reciprocally is as yet scanty but at any rate it is now known that such individuals in reciprocal crosses between *Aythya fuligula* and *A. ferina* the progeny are not similar, (J. M. Harrison, J. G. Harrison, E. H. Gilham in course of preparation).

In the present instance it is very significant that there is such a close similarity shown between three hybrids, two of which are siblings and of known parentage, and the third, an individual of unknown parentage, which on general morphological characters so closely matches the other two, that one would have no hesitation in making an identification of the parent species involved: this identification being further supported by an examination of the respiratory bullae. All these three individuals show a Wigeon dominance, their overall appearances suggesting Wigeon rather than Shoveler. Here again Dr. Beer commenting on the bullae writes "The specimens have the general form of *Anas* and show more characteristics of *penelope* than *clypeata*". This *penelope* dominance is also apparent in the skeletal measurements for those of the hybrid are mostly materially larger than those of *clypeata*, in fact nearly equalling those of *penelope*. Whether this marked Wigeon dominance can be interpreted as indicative of that species antecedent evolution or not it is, of course, impossible to say; all one can say, however, is that the bill of *clypeata* would appear to show a greater degree of adaptive specialisation which would be consistent with that species having a later evolutionary development.



The possible phylogenetic significance and bearing on affinity of the characters of bimacluation and bridling have been fully discussed in other communications, so need not be repeated here, except perhaps to stress that in the writer's opinion they are degrees of the same character which find their most frequent expression in certain species contained in the genus *Anas*: they are to be regarded as "signal" or specific unit characters.

A summary of instances of some of these characters is given in the *Bulletin British Ornithologists' Club*, September 1963 (Harrison J. M. and J. G. 1963).<sup>3</sup> In this paper no fewer than 11 cases are given of characters presenting resemblances towards closely related species. These cases of course refer to such characters occurring in individuals in which, to the best of one's knowledge and belief, no question of interspecific hybridisation has occurred, and it is, of course, inconceivable that such striking recurring variations of a fixed pattern can occur in any haphazard manner.

Dr. Slizynski, to whom I referred this specific point, has kindly commented as follows:

"They must result from genes carried latently within a species group, which from some factor or mechanism at present obscure has become phenotypically visible and appears sporadically in individuals in some closely related species in which they are normally latent or suppressed", and that bimacluation and bridling are only different manifestations of the same recessive character.

The presence of a white neck ring (as shown by the bird on the left) is also seen to be involved in the same complex.

A similar white neck ring as a transient character is also recorded in some Northern Shoveler (Harrison and Harrison, 1959)<sup>4</sup> and in a hybrid Red Shoveler x Northern Shoveler (Harrison and Harrison, 1963)<sup>5</sup>.

#### *Summary:*

This paper describes three examples of a cross between a male European Wigeon and a female Northern Shoveler. Two of the examples are of known parentage and age and are siblings; the third is a presumed hybrid of the same parentage and the same direction of the cross.

Certain individual variation shown by the three individuals is described, and comments upon a comparative study of the respiratory bullae are offered. The significance of certain osteological measurements is stressed.

The bearing of the characters shown by the three specimens in relation to certain other homologous recurring characters in other species of the Anatidae is discussed.

#### *Acknowledgements:*

I would like to express my grateful thanks to the following; firstly to Captain C. R. Peacock to whom I am indebted for the two sibling hybrids; to Dr. G. V. T. Matthews, Scientific Director, and Mr. T. Johnstone, Curator, of The Wildfowl Trust, for the third hybrid, and the control Northern Shoveler. Also to Dr. J. V. Beer of The Wildfowl Trust for permitting me to quote his comments on the tracheal bullae of the specimens, and to Mr. W. Moulard who presented me with the control drake Wigeon.

My sincere thanks are also due to Dr. Jeffery Harrison for valuable suggestions and comments, and to Dr. Pamela Harrison for the photographs herein reproduced.

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## On *Fringilla cinnamomea* Lichtenstein, 1842

by P. A. CLANCEY

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Lichtenstein, *Verz. Samml. Säug. Vög. Kaffernl.*, 1842, p.16, described a bunting obtained in South Africa by his correspondent Ludwig Krebs as "*Fringilla cinnamomea* Licht. Fr. (*Pyrgita*); Notaeo rufo, nigro striolato, gastraeo helvolo, tectricibus alae et remigum secund. margine cinnamomeis. Cauda profunde emarginata rectricibus intermediis margine externo cinnamomeis. Longit. 5 poll.'" The *Type* of this form is still in the collection of the Zoological Museum, Berlin. In dealing with the type-localities of new bird forms described, mainly by Lichtenstein, on the basis of skins obtained by Krebs, Stresemann, *vide Ann. Mus. Roy. Congo Belg.*, Tervuren, new series in 4°, Zool., 1, 1954, p. 81, has shown that the *Type* of *Fringillaria capensis cinnamomea* (= *Fringilla cinnamomea*) was taken by Krebs on the Likwa (= Vaal) River in the year 1838. Mackworth-Praed and Grant, *Birds of the Southern Third of Africa*, vol. ii, 1963, p. 712, attribute *Fringillaria capensis cinnamomea* to Stresemann, 1954, and declare that it is a *nomen nudum*, placing it in the synonymy of *Fringillaria capensis media* Sharpe, 1904, apparently having overlooked Lichtenstein's prior and full description of the form in his *Verzeichnis*.

*Emberiza capensis cinnamomea* (Lichtenstein), 1842; Vaal R., south-western Transvaal, is the earlier and correct name for the subspecies of the Cape Bunting at present known as *E. c. media* (*Fringillaria media* Sharpe, *Ibis*, 1904, p. 354: Deelfontein, near De Aar, central Cape Province, South Africa), which name must now be placed in its synonymy.

I should like to take this opportunity of thanking Professor Dr. Erwin Stresemann for his kind assistance in connection with this enquiry.

## A new race of the Alpine Accentor, *Prunella collaris*, from Formosa

by H. G. DEIGNAN

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The Alpine Accentor of the highlands of Formosa is rare in collections and has, in the literature, consistently been referred to the subspecies *nipalensis* of the eastern Himalaya. Two adult males in Washington, collected by members and/or associates of the United States Naval